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ACQUISITION MANAGEMENT OF THE
DEFENSE COMMISSARY INFORMATION SYSTEM

Report No. 99-183

June 11, 1999

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Office of the Inspector General
Department of Defense

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Acronyms

COTS	Commercial off-the-Shelf
CSC	Computer Science Corporation
DCIS	Defense Commissary Information System
DeCA	Defense Commissary Agency
SSG	Standard Systems Group



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884

June 11, 1999

MEMORANDUM FOR DIRECTOR, DEFENSE COMMISSARY AGENCY

SUBJECT: Audit Report on Acquisition Management of the Defense Commissary
Information System (Report No. 99-183)

We are providing this report for information and use. We conducted the audit in response to direction from the House Committee on National Security (now the House Committee on Armed Services). The Defense Commissary Agency comments on a draft of this report were considered in finalizing it. The complete text of the comments is in the Management Comments section of this report. No open issues remain and no further management reply is required.

We appreciate the courtesies extended to the audit staff. For additional information on this report, please contact Mr. Charles M. Santoni at (703) 604-9051 (DSN 664-9051) (csantoni@dodig.osd.mil) or Mr. David M. Wyte at (703) 604-9027 (DSN 664-9027) (dwyte@dodig.osd.mil). See Appendix D for the report distribution. Audit team members are listed inside the back cover.

A handwritten signature in cursive script, reading "Robert J. Lieberman", is positioned above the typed name.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 99-183
(Project No. 9AL-5030)

June 11, 1999

Acquisition Management of the Defense Commissary Information System

Executive Summary

Introduction. This report discusses the Defense Commissary Agency's acquisition of the Defense Commissary Information System. The audit was conducted in response to direction from the House Committee on National Security for H.R. 3616, National Defense Authorization Act for FY 1999, based on committee concerns that the Defense Commissary Information System had cost significantly more than expected and taken considerably longer to develop than planned. The Defense Commissary Information System was to replace the Defense Commissary Agency Interim Business System and was to be as nondevelopmental as possible by acquiring commercial off-the-shelf software applications to the maximum extent practicable. The new system had a planned total life cycle of 18 years, with initial system deployment expected to occur in FY 1997. Life-cycle system costs were estimated to be in excess of \$250 million. However, the Director, Defense Commissary Agency, discontinued the acquisition in May 1998.

Objective. The audit objective was to evaluate the acquisition management of the Defense Commissary Information System, to include the award and execution of the July 1995 contract. We also evaluated the effectiveness of the management control program as it applied to the audit objective.

Results. Cost, schedule, and performance baselines for the Defense Commissary Information System became unattainable because the Defense Commissary Agency, the Air Force Standard Systems Group, and the contractor overestimated the Defense Commissary Agency's ability to reengineer its business practices and processes to mirror commercial grocery chain operations and to maintain defined system requirements after they were baselined. They also overestimated the quality of software application modules obtained from a commercial grocery industry software supplier to provide a business information solution. About \$62.1 million was actually invested in the project. When faced with schedule delays and significant cost overrun projections, the Director, Defense Commissary Agency, prudently discontinued the acquisition. See the Finding section for details of the audit results and Appendix A for details on the Defense Commissary Information System management control program. A detailed chronology of events leading to the decision to terminate the Defense Commissary Information System is in Appendix C.

Management Comments. The Defense Commissary Agency concurred with the audit's results. The Management Comments section contains the Defense Commissary Agency comments.

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Background

The Report (H.R. 105-532) of the House Committee on National Security, accompanying the National Defense Authorization Act for FY 1999, directed the Inspector General, DoD, to audit the award and execution of the Defense Commissary Information System (DCIS) contract. The Committee was concerned that the automated information system acquisition had cost significantly more than expected and taken considerably longer to develop than planned.

Defense Commissary Agency. DoD Directive 5105.55, "Defense Commissary Agency," November 9, 1990, established the Defense Commissary Agency (DeCA) by consolidating all Army, Navy, Air Force, and Marine Corps commissaries under DeCA. When operations began on October 1, 1991, DeCA chose an Army commissary information system for its business system and renamed it the DeCA Interim Business System.

Replacing the DeCA Interim Business System. Following recommendations made in the December 1989 DoD Study of the Military Commissary System (referred to as the Jones Commission Report), DeCA began planning an acquisition strategy for replacing the DeCA Interim Business System. Identified as DCIS, the new system was to be nondevelopmental and would use commercial off-the-shelf (COTS) programs to the maximum practical extent.

Life Cycle. The DCIS had a planned program life cycle of 18 years. Year one was to start in FY 1991, and initial system deployment was expected in FY 1997 with full system deployment expected in FY 1998. DCIS life-cycle system costs were estimated in excess of \$250 million. DCIS Milestone II approval for engineering and manufacturing development occurred in June 1996.

DCIS Program Oversight and Project Management. Responsibility for DCIS program oversight was divided between the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) and the Director, DeCA, from the acquisition's inception in December 1990 to termination in July 1998. The Air Force Standard Systems Group (SSG) was responsible for managing, procuring, and providing contract administration for the DCIS acquisition. The Air Force Electronics Systems Command provided contract review and oversight from June 1991 through July 1998.

Requests for Proposal. In January 1993, SSG released a draft request for proposal for DCIS. DeCA and SSG spent more than 2 1/2 years in the DCIS source selection process. Prospective contractors were proposing commercial functional solutions, and "best value" was a selection criterion. Also, progress was affected by an SSG chain of command reorganization and outcomes of DoD and congressional directed studies.

Contract Award. On July 31, 1995, SSG awarded the DCIS contract to Computer Science Corporation (CSC). The contract was for 2 base years and 6 option years and was valued at \$58 million. CSC estimated that its commercial information system would result in more than \$48 million that DeCA could put to better use.

Contract Extension. Because the performance of CSC was behind schedule and exceeding costs, DeCA had to make a decision on extending the DCIS contract beyond its base years before August 1, 1997. In June 1997, DeCA tasked the Logistics Management Institute to assess the program and to provide alternatives. As a result of the July 1997 Logistics Management Institute report, DeCA adopted the proposed alternative of extending the DCIS contract an additional year. However, CSC was not allowed to proceed beyond functional qualification testing until DeCA assessed results. Completion of functional qualification testing was planned for November 1997.

Project Termination. The Director, DeCA, discontinued the DCIS on May 11, 1998. Based on a follow-up assessment, which the Logistics Management Institute made in April 1998, continuing the DCIS acquisition in combination with planned facility and technology improvement projects would stress resources in the DeCA Trust Fund. DeCA had invested \$62.1 million in DCIS.

Objectives

The audit objective was to evaluate acquisition management of DCIS to include the award and execution of the DCIS contract in response to direction from the House Committee on National Security (now called the House Committee on Armed Services). The verbatim direction from the House Committee on National Security is in Appendix B. We also evaluated the effectiveness of the management control program as it applied to the audit objective. See Appendix A for a discussion of the audit scope and methodology and our review of the management control program.

Modifying the Defense Commissary Information System

Cost, schedule, and performance baselines for DCIS became unattainable because DeCA, SSG, and CSC overestimated the ability of DeCA to reengineer its business practices and processes to mirror commercial grocery store operations and to maintain defined system requirements after they were baselined. They also overestimated the quality of software application modules obtained from a commercial grocery store vendor to provide it a business information solution. The overestimations resulted in increased program management risk, work delays, necessary modifications, and program cost overruns. When faced with schedule delays and significant cost overrun projections, the Director, DeCA, prudently discontinued the acquisition.

Recognizing and Managing Risks

The DeCA, SSG, and CSC did not recognize the DCIS as a high-risk information technology investment, and as a result of optimistic assumptions, they did not manage the challenges involved with the system acquisition

Acquisition Major Automated Information System. Inspector General, DoD, Report No. 92-130, "Quick Reaction Report on the Acquisition of Defense Commissary Information System," August 28, 1992, concluded that DCIS met DoD acquisition oversight thresholds for a major system acquisition and was high risk. The report recommended that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) designate DCIS as a Major Automated Information System acquisition. The Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) concurred with the draft report recommendation and made the acquisition a designated Major Automated Information System Review Council oversight program in June 1992. The recognition that the acquisition required acquisition oversight from the Major Automated Information System Review Council occurred before SSG released a draft proposal for DCIS in January 1993 and before SSG awarded the contract to CSC in July 1995.

In October 1996, the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) returned DCIS program oversight to the Director, DeCA. Making DCIS an Acquisition Category IAC Major Automated Information System subject to component rather than Major Automated Information System Review Council oversight was contrary to an agreed-upon audit report recommendation from the Inspector General, DoD. Further, the delegation occurred at a particularly sensitive time, when the DCIS contract was being restructured because of an acquisition strategy change.

Assumptions

DeCA, SSG, and CSC made optimistic assumptions that increased risk and resulted in slipped schedules and cost growth. DeCA, SSG, and CSC presumed the following:

- DeCA would change its business processes to accommodate commercial business practices and processes.
- Requirements analysis and development would not be necessary
- The COTS products to be modified were mature and supported by developers.
- Software modifications for interface and integration would be minimal.
- Periodic upgrades and maintenance would reduce life-cycle costs.

DeCA was not able to sufficiently emulate commercial business practices and processes so that a COTS system solution could meet its needs. Following the Jones Commission Report, DeCA implemented an acquisition strategy that requested contractors to submit DCIS proposals that engaged COTS applications to process and expedite its grocery-store business information requirements. In June 1994, DeCA estimated that only 20 to 30 percent of the total DCIS might require development. The CSC submission for the DCIS solution satisfied the requirements of the SSG request for proposal. CSC provided SSG with an integrated COTS grocery chain store business information system for initial system deployment or operating capability, engineering support, hardware and software, software licenses, maintenance, training, travel, data, and site surveys. CSC estimated that its solution at contract award provided DeCA with 90 percent of the required DCIS functionality. However, DeCA was aware that for the CSC solution to succeed, it would have to reengineer its business practices and processes to the CSC COTS solution specified in the request for proposal. Further, DeCA and SSG could not make any modifications to business practices and processes if those modifications had more than a minimal impact on the COTS solution.

Reengineering Business Practices and Processes. Since the October 1, 1991, commissary store consolidation, DeCA had been streamlining its operations to avoid duplication and excess capacity and had been redefining its business practices and processes in recognition of organizational changes.

Streamlining. In response to a recommendation in Inspector General, DoD, Report No. 94-083, "Central Distribution Center Operations of the Defense Commissary Agency," April 13, 1994, DeCA streamlined its organization by eliminating central distribution centers in the continental United States. DeCA claimed a one-time cost avoidance of \$161 million as a result of the elimination of central distribution centers. However, the DCIS solution that CSC provided was incompatible with the DeCA reorganized distribution structure. Following commercial practices of retail grocery chains, the CSC solution required the central distribution centers to be linked for stock reordering and redistribution to its retail outlets. In January 1996, recognizing

the importance of the system's link to the CSC solution and its incompatibility with existing DeCA business practices and processes, DeCA and the SSG changed the DCIS acquisition strategy from a COTS solution to a modified COTS solution and later modified the CSC contract accordingly. In effect, DeCA and SSG changed the DCIS acquisition strategy from an integrated COTS information solution to one requiring development and reuse of COTS software modular applications. However, DeCA, SSG, and CSC did not assess the cost, schedule, and performance impact that requirement changes, modifications, interfaces, and discoveries about the quality of the software applications would have on the acquisition's development and life-cycle sustainment.

Systems Integrator and Developer. Rather than merely functioning as the systems integrator of the DCIS COTS applications, CSC became both the systems integrator and developer. CSC committed to redesigning and reworking the COTS applications in response to the inability of DeCA to become a mirror image of a retail grocery corporation. As a result, CSC had to replace the COTS corporate warehouse distribution system in the continental United States with new and enhanced applications for direct deliveries from manufacturers and suppliers to DeCA stores for grocery items and perishables. Further, COTS applications that interfaced with the DCIS Corporate File Management module had to be modified with universal product codes or barcode identifiers to process manufacturers' and suppliers' direct delivery transactions to DeCA stores. CSC estimated that modifications made to the DCIS COTS for DeCA business practices and processes increased estimated staff hours of work for initial deployment from 153,000 to 243,000.

Rebaselining. Later, SSG rebaselined DCIS to respond to the changed acquisition strategy. Cost and schedule baselines had to be increased and extended to accommodate barcodes and the business process change from a regional ordering and distribution system to a direct delivery system from manufacturers and suppliers. As a result, SSG, with DeCA approval, extended the DCIS initial operating capability an additional 12 months from 18 to 30 months. Further, costs increased an additional \$11 million from \$8 million to \$19 million to accommodate the business process change and additional requirements identified by DeCA after the award of the contract in July 1995.

Modifications. DeCA could not make minimal system modifications to the DCIS COTS solution. The DCIS requests for proposal made it known to offerors that their business solutions must be flexible throughout their life cycles to meet challenges of future organizational realignments. In addition to the inclusion of barcode identifiers for processing retail store inventories, CSC would make other changes to the DCIS COTS to accommodate DeCA evolving business practices and processes. Modifications would be required for external interfaces for the DeCA point-of-sale business system, electronic data interchange transaction sets in support of the frequent delivery system, and accounts payable roll-ups and contract numbers for the Defense Finance and Accounting Service accounting systems. Further, CSC revised the agreements for the point-of-sale interface requirement, the Standard Automated Voucher Examination System interface requirement, and the Standard Financial Inventory Accounting and Reporting System interface. Also, CSC changed the electronic data interchange interfaces with industry. CSC charged SSG more than \$400,000 for DCIS rework.

Cumulatively, modifications to accommodate the business practices and processes of DeCA extended the DCIS estimated initial operating capability by 22 months and increased its estimated costs by \$20 million. Schedule estimates for the DCIS initial operating capability more than doubled from 18 to 40 months, and cost estimates more than tripled from \$8 million to \$28 million. In addition to the schedule extensions and cost increases, the SSG descoped the DCIS initial operating capability by eliminating overseas and nonresale requirements and interface requirements for the point-of-sale system. As a result, DeCA was waiting longer and paying more to receive a modified COTS system that would not satisfy its business practices and processes

Requirements Analysis and Specification Development. The DCIS acquisition strategy change from COTS integration to modified COTS development elevated the importance of requirements analysis and specification development before performing market research and acquiring COTS products. Recognizing that they could not accept the COTS solution of CSC after awarding the DCIS contract, DeCA, SSG, and CSC created an integrated product team to analyze functional requirements and to develop specifications that would match the business practices and processes of DeCA. As a result of that essential exercise, CSC had to link requirement differences between DeCA specifications and the COTS modular application products.

CSC had to modify 32 of the 37 grocery system modules and provide 6 additional modular applications that would match DCIS requirement specifications with DeCA business practices and processes. Besides the effort to modify the COTS modules, DCIS had to address interface links with existing and evolving internal and external automated information systems. CSC added six modules for the interfaces. CSC charged SSG more than \$350,000 for DCIS requirements analysis and development to make DCIS perform like the DeCA Interim Business System.

Product Maturity and Developer Support. DeCA, SSG, and CSC believed that the DCIS COTS products to be modified were mature and supported by their developers. For the revised DCIS, CSC reused COTS applications that the retail grocery chain developed. CSC believed that the modules qualified as mature COTS products because the developing vendor had deployed them for his own business use and was offering them to other users. Although the modules met the developer's requirements and functioned within his information environment, they were nondevelopmental item applications. The vendor tailored them to his business practices and processes. User experience with the modules outside of the vendor's business environment did not exist, and as proprietary products, they had not been stressed to determine the extent to which they could accommodate business process and practice modifications and changes. Further, because the vendor had not initially anticipated offering its information system to others, it was not contractually bound to conform to Government and industry quality standards and benchmarks when the COTS modules were developed. As a result, an identified program management risk existed because DeCA, SSG, and CSC overestimated the quality of the vendor's COTS products. They assumed that product maturity also meant product quality.

Software Modifications. CSC had to become familiar with the design and development of the vendor's software modules to efficiently and effectively develop and modify software to match DeCA business practices and processes. CSC did not receive the vendor's fully functional COTS software until 5 months after contract award. Upon receipt of the software modules, CSC found that it had to expend unplanned effort to enhance the software documentation because of its poor quality. Further, CSC needed full-time assistance from the COTS vendor to assist in the development effort because the change in acquisition strategy required CSC to rework its original DCIS solution. As a result, CSC had to reengineer existing software modules and add modules to complete DCIS requirements.

CSC obtained 46 modules containing 1,098,301 source lines of software code from the COTS vendor. CSC used 37 of the modules, which contained 905,585 source lines of software code. Because of the change in acquisition strategy, CSC had to modify 32 of the modules consisting of 828,835 source lines of software code and had to write 75,680 source lines of code in 12 new modules developed to satisfy DeCA requirements not addressed in the COTS solution. The significance of DeCA business practices and processes determined the extent of module modifications. For example, CSC had to modify 80 percent of the vendor's Corporate File Management module, or approximately 40,000 source lines of software code, to accommodate the DeCA requirement for barcodes and other requirements. As a result, work progressed at rates less than planned because CSC misjudged the quality of the vendor's COTS products and the DeCA requirements. The CSC efficiency rate for design and prototype of the DCIS initial operating capability was 40 percent for January 1997.

Periodic Upgrades and Maintenance. The DeCA change in acquisition strategy reduced expectations that periodic plug-and-play upgrades and maintenance for the DCIS COTS products could reduce program life-cycle costs. Because the CSC modifications to the vendor's grocery modules touched more than 75 percent of the COTS source lines of software code, later upgrades and maintenance made to the COTS products after their deployment would require software reintegration by CSC. Further, reintegration changes that CSC made could invalidate COTS licensing agreements and warranties for software applications obtained from suppliers other than the primary vendor. Also, database and operating system upgrades and maintenance made by the suppliers could affect interfaces with other automated information systems when CSC reintegrated the DCIS software modules. In addition, because CSC modified the COTS grocery modules, the primary vendor might be disinclined to dedicate resources to make software version changes to a one-of-a-kind system. Further, it might not have been feasible to compete DCIS maintenance if DCIS were deployed because the quality of the system's documentation may be insufficient to transfer the function to a third party. As a result of the CSC modifications, operation and support costs after DCIS deployment could have exceeded the \$200 million programmed for the system over its life cycle.

Conclusion

Cost, schedule, and performance baselines for DCIS initial system deployment became unattainable because the DeCA business structure and processes had changed dramatically and DeCA and SSG neither recognized nor managed risks involved with acquiring COTS and modified COTS items. DeCA, SSG, and CSC overestimated the following:

- the ability of DeCA to reengineer its business practices and processes to the extent needed before adopting a COTS information system and to maintain defined system requirements after they were baselined and
- the quality of the CSC COTS products when they were tailoring the COTS commercial retail grocery system to implement current and changing DCIS business practices and processes.

Recognizing that DCIS would not be entirely deployed before the year 2000 because of the schedule extensions, DeCA prudently initiated an \$11 million action to modernize its legacy grocery business information system, the DeCA Interim Business System, to make it capable of processing dates ending with the digits "00." Technology advances had made it possible to expand the DeCA Interim Business System capability beyond its original limitations. Further, when the Logistics Management Institute made its DCIS assessments in July 1997, DeCA shared results with its functional chain of command before making the decisions to continue the DCIS contract. The Logistics Management Institute follow-up assessment in April 1998, which was shared with the Acting Assistant Secretary of Defense (Force Management Policy), projected that DCIS contract completion costs would exceed \$139 million.

As a result of projections derived from SSG and CSC cost and schedule models and DCIS test results, DeCA reevaluated its automated information system portfolio. DeCA determined that the costs to complete the DCIS and to modernize the DeCA Interim Business System would stress the DeCA Trust Fund by delaying store modernization cycles and information technology improvements financed from surcharge assessments to patrons' grocery bills. Deciding that the expenditure of additional funds to deploy and sustain the DCIS could not be justified, the Director, DeCA, discontinued the acquisition on May 11, 1998. After spending \$62.1 million for DCIS contract development and deliverables and SSG project management costs, DeCA planned to recycle DCIS hardware, cabling, and software licensing agreements, valued at \$13 million, for use on the DeCA Interim Business System replacement known as the DeCA Information Business System 2000. Because of the decision to discontinue the DCIS acquisition, this report contains no recommendations

Appendix A. Audit Process

Scope and Methodology

We conducted this program audit from October 1998 through May 1999. We gathered documentation and obtained information relating to the DCIS acquisition dated from December 1989 through August 1998. To accomplish the audit objective, we took the following steps:

- reviewed DCIS acquisition documents covering program requirements, program definition, contracting, program assessments and decision reviews, and periodic reporting;
- reviewed FY 1998 DeCA Trust Fund authorization and budget-execution reports;
- interviewed and obtained documentation from the Assistant Secretary of Defense (Force Management Policy), the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), SSG, and CSC to address program management and oversight; and
- interviewed functional area experts from the Logistics Management Institute and DeCA.

Use of Computer-Processed Data. We did not rely on computer-processed data or statistical sampling procedures to perform the audit.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD and CSC. Further details are available upon request.

DoD-Wide Corporate-Level Government Performance and Results Act Goals. In response to the Government Performance and Results Act, DoD established 6 DoD-wide corporate-level performance objectives and 14 goals for meeting those objectives. This report pertains to achievement of the following objective and goal:

Objective: Fundamentally reengineer DoD and achieve a 21st century infrastructure. **Goal:** Reduce costs while maintaining required military capabilities across all DoD mission areas. **(DoD-6)**

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objectives and goals:

Information Technology Management Functional Area.

- **Objective:** Become a mission partner. **Goal:** Facilitate process improvement. **(ITM 1.3)**
- **Objective:** Provide services that satisfy customer information needs. **Goal:** Modernize and integrate Defense information infrastructure **(ITM 2.2)** and upgrade technology base **(ITM 2.3)**

General Accounting Office High-Risk Area. The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the Defense Information Management and Technology high-risk area.

Management Control Program Review

DoD Directive 5010.38, "Management Control (MC) Program," August 26, 1996, requires DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of Review of the Management Control Program. The Under Secretary of Defense for Acquisition and Technology integrated DoD Directive 5010.38 requirements into the March 15, 1996, revision to DoD Directive 5000.1, "Defense Acquisition," and DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs." Acquisition managers are to use program cost, schedule, and performance parameters as control objectives to implement the DoD Directive 5010.38 requirements. Managers are to identify material weaknesses through deviations from approved acquisition program baselines and exit criteria. Accordingly, we limited our review to management controls related to the acquisition of DCIS.

Adequacy of the Management Control Program. DeCA and SSG provided adequate controls over the acquisition management of DCIS as they applied to the audit objectives. The DeCA and SSG applied cost, schedule, and performance parameters as control objectives to implement the DoD Directive 5010.38 requirements. DeCA discontinued the acquisition when results derived from cost and schedule performance models and test results demonstrated that the acquisition's initial operating capability would slip beyond revised delivery dates and that costs would exceed revised estimates.

Summary of Prior Coverage

Prior to this review, no audits had been performed on the acquisition management of the DCIS since the Inspector General, DoD, effort discussed on page 3.

Appendix B. Inspector General, DoD, Direction From the Report of the House Committee on National Security Accompanying the National Defense Authorization Act for FY 1999

The following language from the Report of the House Committee on National Security, H.R. 105-532 provides the Committee's rationale for the audit

The committee is aware that the Defense Commissary Agency (DeCA) has had substantial difficulty in fielding the Defense Commissary Information System (DCIS). The committee understands that the development of the system has cost significantly more than originally expected, and has taken considerably longer to develop than planned. The committee understands that costs have increased by over \$20 million, and that the time to field the system has increased from 18 to 40 months. Since the new system is funded through the commissary surcharge account, commissary patrons are bearing the cost of these overruns. The committee notes that DCIS was intended to be a quick modification of a commercial grocery chain's information technology system, and notes that DeCA's inability to quickly adapt the system has caused delay in meeting critical year 2000 software adjustments. The committee is concerned about DeCA management of this program and the effect of the cost overruns on the patron funded surcharge account, and directs the Department of Defense Inspector General to audit the award and execution of the DCIS contract, and report her findings to the Senate Committee on Armed Services and the House Committee on National Security by January 31, 1999.

Appendix C. Defense Commissary Information System Chronology of Events

<u>Chronology</u>	<u>Milestone</u>
	Planning
November 1990	The Defense Commissary Agency (DeCA) was established on November 9, 1990, in response to the December 1989 DoD Study of the Military Commissary System, referred to as the Jones Commission Report. The report recommended the consolidation of the four independent military commissary operations to reduce costs, provide improved service, and compete with the commercial grocery industry.
December 1990	DeCA released a mission need statement outlining the requirement for an automated information system to modernize and integrate the business functions of the four separate commissary systems. As recommended by the Jones Commission Report, the acquisition objective was to acquire a commercial off-the-shelf (COTS) automated system that would, through reengineering of DeCA business processes, provide for efficient and cost-effective retail grocery operations mirroring those found in the private sector. DeCA intended to change its business practices where necessary to accommodate the selected COTS solution.
June 1991	DeCA selected the Air Force Standard System Group (SSG), Maxwell Air Force Base, Alabama, to provide program management and contract administration services for the new program called the Defense Commissary Information System (DCIS). Extensive market research immediately began, including a study by the Harris Data Service Corporation, to confirm the availability of COTS to satisfy system requirements and to identify hardware, software, and support environments used in retail grocery chain store operations.
December 1991	DeCA and the SSG hosted a DCIS briefing with vendor representatives. More than 80 companies attended the briefing sessions.

Chronology

Milestone

Procurement

January 1992	DeCA sent an agency procurement request to the General Services Administration to obtain the authority to initiate a competitive acquisition of the DCIS with an estimated life-cycle cost of \$68 million. Also, SSG released a request for information, including draft functional specifications and a questionnaire to solicit industry comments and recommendations on the DCIS procurement. In response, SSG received more than 372 questions, including numerous suggestions and recommendations.
January 1993	SSG incorporated comments from the request for information over a period of about 12 months into a draft request for proposal, which was released on January 29, 1993. The request for proposal resulted in another round of questions and answers and the release in July 1993 of a second draft request for proposal, again incorporating the comments and recommendations submitted by the responding vendors. Included as an attachment was an integrated definition technique "as is" model, developed by Coopers and Lybrand, defining current DeCA business practices. The model's intent was to describe current DeCA operations and to assist vendors in formulating their "to be" model reflecting adoption by DeCA of industry business practices. DeCA expected at that time to release the final request for proposal after the Milestone I decision scheduled for September 1993.
December 1993	DCIS achieved Milestone I, "Concept Demonstration," approval on December 27, 1993. However, the release of the request for proposal was delayed pending the outcome of a number of DoD and congressional directed studies. In December 1993, the Under Secretary of Defense (Comptroller) directed DeCA to conduct a comprehensive study of the feasibility of using some or all of the exchange business systems to support the DeCA operations. DeCA provided the result of the study to the Comptroller on April 11, 1994. In addition, the Committee on Armed Services, Morale, Welfare, and Recreation Panel, deferred full funding of the program pending a report by the Secretary of Defense. The report outlined efforts by DoD to move toward an overall business system architecture that would be adaptive among the Exchange Services, the morale, welfare, and recreation community, and DeCA. The Morale, Welfare, and Recreation Panel received the report in March 1994 and approved full funding of the DCIS acquisition on June 9, 1994.

Chronology

Milestone

June 1994	DoD authorized DeCA to proceed with the acquisition on June 9, 1994. The functionally written request for proposal was released to industry on June 10, 1994, requesting best-and-final offers by January 3, 1995.
August 1994	Proposal evaluation began in August 1994 with an expected contract award date of February 21, 1995. However, clarifications and corrections required SSG to issue eight amendments to the request for information between July 22, 1994, and April 27, 1995.
July 1995	The Source Selection Committee determined that the Integrated Systems Division, Computer Science Corporation (CSC), had proposed the "best value" COTS solution. The Source Selection Committee determined that CSC addressed greater than 90 percent of the functional requirements through the use of COTS. CSC addressed the functional requirements by teaming with Shaw's Supermarkets to implement Shaw's proprietary grocery system as the core business system for DCIS. The development strategy included integrating the proprietary grocery system with a number of single-application commercial software packages and providing "Black Box" interfaces to other Government automated accounting and financial systems. The contract was awarded on July 31, 1995, with a target price of \$58 million, which covered 2 base years for system development and 6 option years for life-cycle support.

Implementation

July 1995	CSC proposed to achieve initial operational capability within 18 months and full operational capability within 32 months of contract award. However, DeCA made major organizational changes to its headquarters, regions, and commissary operations after release of the request for proposal. Those streamlining initiatives added an Operations Support Center, eliminated two service centers, replaced districts with zones, and eliminated the use of central distribution centers in the continental United States. Those organizational changes were not reflected in the "as is" model or request for proposal and were not supported in the DCIS proposal. Those and subsequent requirements changes essentially transformed the DCIS from a COTS implementation to a development effort with major impact on the system's functionality, cost, and schedule.
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Chronology

Milestone

Design and Development

August 1995

CSC was required to move the loosely integrated proprietary grocery system from a collection of platforms (mainframe, minicomputers, and personal computers) to integrated client-server architecture having a graphical user interface. Also, shortly after contract award, DeCA tasked CSC to do the following:

- establish a DCIS prototype and training facility at DeCA Headquarters, Fort Lee, which included a remote electronic meeting capability and a video teleconferencing system;
- conduct studies to determine ways to achieve early, incremental implementation of the proprietary grocery system; and
- incorporate operational changes required by the addition of the Operations Support Center.

CSC was slow in responding to the requirements and found that software development was more difficult than it originally anticipated. For example, CSC stated that it had encountered unexpected technical problems with the software provided by Shaw and that conversion to the graphical user interface was 10 times more complicated than originally estimated. The software was poorly documented and required CSC to "reverse engineer" the proprietary grocery system code before implementing code changes.

January 1996

As a result of schedule slippage and cost overruns, SSG issued a letter of concern on January 31, 1996. The letter detailed numerous problems with the CSC development effort, including the following:

- CSC personnel working the program did not understand what was contained in the CSC proposal. The CSC team lacked a comprehensive understanding and in-depth knowledge of the proprietary grocery system.
- CSC and Shaw were unable to provide adequate information concerning the functionality and data flow of the proprietary grocery system. The lack of information severely limited the ability of DeCA to validate the DCIS functional requirement baseline and identify candidate functional processes for possible reengineering.
- CSC did not have its most knowledgeable personnel working on DCIS, and an insufficient number of people were working the program.

Chronology

Milestone

January 1996

CSC agreed that it lacked an adequate understanding of the proprietary grocery system necessary to convey functionality and data flow to the Government and stated that it would augment its systems engineering staff and leadership. CSC also agreed that the current subcontract arrangement with Shaw did not provide the force and flexibility required to obtain the level of support that the Government now desired. However, CSC believed that many of the activities that the Government requested were beyond the scope of the contract and offered to develop a contract change proposal to incorporate an increased level of support

March 1996

A second letter of concern to CSC, dated March 15, 1996, detailed CSC failure to deliver a working DCIS prototype at the DCIS Montgomery, Alabama, facility and the Maxwell Air Force Base commissary store within 60 days of contract award. CSC responded by asserting that working program start-up issues had impacted CSC and Shaw's ability to properly focus its management and energy on meeting contract requirements. Further, the major changes and the number of changes contemplated would have a "ripple effect" upon future work.

May 1996

DeCA reorganization and its inability to change its business practices resulted in major modification of the proprietary grocery system software not envisioned in the original COTS development strategy. For example, elimination of its central distribution centers led to a decision by DeCA in May 1996 to require the conversion of DCIS from an item-code-driven information system to one in which the universal product code or barcode is used as the primary commodity identifier. The proprietary grocery system implemented the current industry practice of augmenting the barcode with a unique in-house identifier or item code used as the prime system key throughout the automated system for all commodity transactions between the store and warehouse. However, as a result of the elimination of central distribution centers, commissary stores ordered just-in-time, next-day deliveries. Therefore, all grocery orders to manufacturers and distributors had to reference barcodes rather than item codes. DeCA determined that the conversion would give the best long-term return on investment and provide one-time avoided costs of \$161 million in resale stocks.

Chronology

Milestone

June 1996

Milestone II approval to continue the design analysis and development was granted by the Major Automated Information System Review Council on June 5, 1996, contingent upon the following:

- submission of an approved Acquisition Baseline, Operational Requirements Document, and Test and Evaluation Master Plan to the Major Automated Information System Review Council Executive Secretary within 60 days;
- establishment of a Test and Evaluation Integrated Product Team to focus on refining the program's test strategy;
- establishment of an economic analysis Integration Product Team to focus on developing a coordinated economic analysis development plan in support of Milestone III; and
- updating the concept of operations for the objective system in support of the current operational requirements, capabilities, and user performance expectations.

Rebaseline

July 1996

The DCIS designated acquisition commander provided direction to rebaseline the DCIS. The objective of the rebaseline direction was to extend the schedule and provide additional funds for converting to universal product codes; to develop interfaces for DeCA point-of-sales modernization; to develop the Trading Partners Electronic Data Interchange; and to provide hardware, software, and implementation services for the new Operations Support Center. The contract change proposal to incorporate the new program baseline was finalized for \$11.2 million and extended initial operating capability by approximately 1 year to February 1998.

Delegation of Milestone Authority

October 1996

On October 15, 1996, the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), recognizing DeCA as a DoD designated performance-based organization, delegated DCIS milestone decision authority to the DeCA Automated Information System Review Council. That delegation relieved DeCA of some of the oversight and reporting requirements established in the DoD 5000 series of regulations. However, automated information system quarterly status reports were still required by the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) because of the level of DoD and congressional interest in the program.

Chronology

Milestone

Program Assessments

January 1997

At the direction of the Commander, Air Force Electronic Systems Command, the Air Force Executive Agent for the DCIS acquisition, an independent assessment of the program was performed in January 1997. A five-member "Red Team" from DeCA, the Mitre Corporation, and the Air Force Electronic Systems Command was formed to independently assess program risks and to determine whether a successful initial operating capability could be achieved by March 1998. The "Red Team" reported that CSC staffing shortfalls and turnover appeared under control. However, the DCIS schedule was high risk. The "Red Team" concluded the following:

- No time was allotted for contingencies.
- The extent of software development was unknown because CSC did not know how much software code they could reuse from Shaw's Retail Grocery System.
- Minimum time was planned for testing, and no regression testing was planned to determine the robustness of the system.
- External delays could deter progress.

June 1997

DeCA commissioned an independent cost-benefit analysis by the Logistics Management Institute to assess various alternatives before proceeding with the program beyond the original 2-year base contract period. The alternatives follow:

- to not exercise Option One, but to continue the program beyond July 31, 1997;
- to exercise Option One to proceed with development through functional qualification testing; or
- to exercise Option One but to postpone development of post-initial operating capability requirements until completion of functional qualification testing.

Chronology

Milestone

July 1997

The results of the Logistics Management Institute analysis were briefed to the Executive Director of Morale, Welfare, Recreation, and Resale Activities on July 28, 1997. The analysis concluded that significant savings could be realized with the acquisition and deployment of the DCIS. It was decided to continue the acquisition but reassess the program at the conclusion of functional qualification testing. It was also decided to divide the development into smaller increments and to exercise Option One of the DCIS contract. Block 1.0 of DCIS would include the functionality for store ordering, receiving, financial operations, merchandizing, labor management, decision support, and the interface for the store point-of-sale system.

January 1998

Functional Qualification Testing for the DCIS was completed on February 13, 1998. The DCIS passed 84 percent of the tests and 26 of the 34 test and evaluation master plan measures of effectiveness. However, tests results were inconclusive because of the following:

- Contract data for payment processing were missing at store levels.
- Financial processing was not accurate.
- Store ordering algorithms were not always correct.
- The event scheduler was not always functioning.
- Volume stressing was not conducted.

Contract Expiration

April 1998

Recognizing that its information technology budget was being stressed by DCIS delays and cost overruns, DeCA contracted with the Logistics Management Institute for a second assessment. The Logistics Management Institute concluded that the DCIS and enhanced DeCA Interim Business System were high risk.

May 1998

The Director, DeCA, discontinued the DCIS acquisition on May 11, 1998. He believed that DeCA could not justify the acquisition. The costs for DCIS combined with year 2000 revisions for other information technology systems would financially stress the DeCA Trust Fund. On May 15, 1998, DeCA briefed the Acting Assistant Secretary of Defense (Force Management Policy) explaining its rationale for allowing the DCIS contract to expire in July 1998.

Appendix D. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
Deputy Under Secretary of Defense (Acquisition Reform)
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Under Secretary of Defense (Comptroller)
Deputy Chief Financial Officer
Deputy Comptroller (Program/Budget)
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Assistant Secretary of Defense (Force Management Policy)
Director, Morale Welfare Recreation and Resale Activities
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Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
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House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
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House Committee on Government Reform
House Subcommittee on Government Management, Information, and Technology,
Committee on Government Reform
House Subcommittee on National Security, Veterans Affairs, and International
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Defense Commissary Agency Comments



REPLY TO
ATTENTION OF

DEFENSE COMMISSARY AGENCY
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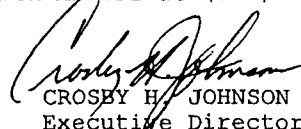
MAY 25 1999

MEMORANDUM FOR INSPECTOR GENERAL, ACQUISITION MANAGEMENT
DIRECTORATE, 400 ARMY NAVY DRIVE, ARLINGTON, VA
22202-2884

SUBJECT: Audit Report on Acquisition Management of the Defense
Commissary Information System (Project No. 9AL-5030)

Reference: Memorandum, DoDIG, May 20, 1999, SAB

The report accurately portrays the circumstances surrounding the award and subsequent decision to discontinue the acquisition of the Defense Commissary Information System. If you have any questions, please contact Mr. Ben Mikell at (804) 734-8103.


CROSBY H. JOHNSON
Executive Director for Support

Attachment:
As Stated

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